

Using Verbenone to Protect Host Trees from Mountain Pine Beetle Attack

**Montana Department of Natural Resources and Conservation
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Verbenone (trimethyl-bicyclo-heptenone) is a pheromone used in the chemical communication system of mountain pine beetles (MPB). It plays a role in colonization of host trees, sending a message that a particular tree is fully occupied and with no space available for additional beetles.

Current Recommendations and Cautions for Using Verbenone

1. Area and/or stand to be treated should be assessed for both hazard (susceptibility) and risk (likelihood of infestation) to MPB. If more than 15% of the stand is occupied by currently infested trees, and those trees cannot be removed prior to beetle flight; do not use verbenone. Results may not be worth the costs.
2. For individual-tree protection, use two 7- or 7.5-gram pouches per tree. Staple pouches to northeast and northwest side of tree, 4-6 feet high. In recreation areas, staple (or tack) pouches about 10 feet high—out of normal reach. For larger trees (>24" d.b.h.) use 3-4 pouches per tree, stapled equidistantly around tree's circumference.
3. For area protection, recommendations vary with beetle populations. Where beetle populations are lower (less than 10% infestation rate in surrounding stands), 20 pouches per acre will give good protection. If higher than about 20%, 40 pouches per acre may be better. (20 pouches per acre = approximate 47-foot grid; 30 = 38-foot grid; 40 = 33-foot.)
4. Verbenone pouches should be in place at most locations by **July 1**. MPB flight typically occurs from mid-July to late-August (with seasonal variation on each end). In high-elevation whitebark pine (WBP) stands, MPB life cycles may be varying lengths, with some beetle flight as early as late-May. For treating WBP, we recommend treatments be in place by the end of May.
5. Verbenone is a fairly innocuous chemical, but care should be exercised in its use. Manufacturers recommend using chemical-resistant gloves when applying and any other safety equipment typically used in the field. Care should be taken to follow all precautions found on registration label.